more obese and have worse health-related quality of life (HRQoL) compared with population controls. The aim of this study was to examine the inter-relationship between obesity, impaired HRQoL and the risk of knee and hip replacement for osteoarthritis.
Methods: This study included 8,976 participants of the Australian Diabetes, Obesity and Lifestyle Study who had HRQoL measured using the SF-36 and body mass index (BMI) measured in 1999-2000, and were aged >40 years at joint replacement data collection commencement. The incidence of knee and hip replacement for osteoarthritis during 2002-2011 was determined by linking cohort records to the Australian Orthopaedic Association National Joint Replacement Registry.
Results: 310 knee replacements and 200 hip replacements were performed for osteoarthritis. Higher BMI (independent of PCS and MCS score) and lower PCS score (independent of BMI) were associated with increased incidence of both knee and hip replacement for osteoarthritis. Although no interaction between obesity and impaired PCS was found for the association with knee and hip replacement for osteoarthritis, obese people, without or with impaired PCS, had increased risk of knee replacement for osteoarthritis compared with those with no obesity and impaired PCS (HR 1.65, 95% CI 1.11-2.47 and 1.82, 95% CI 1.04-3.19, respectively). There was no significant association for obesity and impaired PCS with the risk of hip replacement.
Conclusions: Although obesity and impaired physical function are both risk factors for knee and hip replacement for osteoarthritis, our findings indicate that obesity, rather than impaired HRQoL, is the major risk factor for people to undergo knee replacement for osteoarthritis. This highlights the importance of targeting obesity in reducing knee replacements.

570
IS WEIGHT GAINING EFFECT THE TIME AND DISTANCE CHARACTERISTICS IN PATIENTS WITH KNEE OSTEOARTHRITIS?

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Purpose: This study aimed to investigate whether weight gaining causes differences in the time and distance characteristics in patients with knee osteoarthritis and if there was, it was searched for which way effected.
Methods: Eighty individuals (mean age: 53.13±6.78 years) without orthopaedic and neurologic problem that would effect physical performance or muscle strength accompanying with Level I, II, or III osteoarthritis according to the Kellgren and Lawrence grade on radiography participated in the study. Thirty-six individuals (28 female, 8 male; mean age: 53.53±6.01 years) were with normal body mass index (BMI: 23.33±2.19 kg/cm^2). Forty-four individuals (38 female, 6 male; mean age: 52.82±7.41 years) were with obesity (BMI: 34.62±3.36 kg/cm^2). The time and distance characteristics measurements of gait were recorded with a VICON motion analysis system (Workstation Version 4.0, Oxford UK) with 6 infrared cameras with 50Hz and Bertec Force Platform (USA) connected to the motion analysis system.
Results: There were no difference between groups in age, sex, radiographic stage and osteoarthritis severity in right/left extremity parameters (p>0.05). No difference were found between groups in gait velocity (p:0.351), cadance (p:0.927), stride length (p:0.915) and walking base (p:0.062) parameters. Individuals with obesity had higher scores during stance phase (p:0.001) and double support phase (0.011) parameters while lower scores during single support time in individuals with obesity compared to indivuduals with normal weight (p:0.014).
Conclusions: Our results demonstrated that weight gaining in individuals with osteoarthritis effects time characteristics of gait rather than distance characteristics. In additon, as a result of increase in BMI, shorter support time during stance phase with the compensation of increase in double support and general stance phase time occurs through weight bearing accompanying with dynamic gait activity. Controlled body weight gain is important to enable symmetric gait pattern since mechanical erosion with age is seen in patients with knee osteoarthritis.

571
PATIENT SPECIFIC VARIABLES INFLUENCE PATIENT REPORTED OUTCOME SCORES IN TKA POPULATION

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Purpose: The importance of collecting patient reported outcome (PRO) data as part of standard care for evaluating orthopaedic diseases states has become increasingly recognized. PRO data provided in real-time specifically quantifies pain, disability and quality of life, all of which are critical to inform orthopaedic care effectively. However, the ability to interpret PRO scores and understand which factors influence patient answers is not widely reported. In this study, we investigated the relationship between pre-surgery PRO scores and patient demographic factors in a total knee arthroplasty (TKA) population.
Methods: Preoperative PRO scores were collected for 311 patients undergoing primary total knee arthroplasty with a primary diagnosis of osteoarthritis between May 2012 and April 2014. Overall quality of life as measured by the EuroQol-5D (EQ-5D) along with all five domains (pain, symptom, activities of daily living (ADL), quality of life (QOL), sports/recreation) of the Knee Osteoarthritis Outcome Score (KOOS) were collected. Patient demographics included age, gender, race, BMI and ASA score. Multivariate linear regression was used to evaluate the relationship between demographic variables and baseline PRO scores.
Results: Multivariate analysis showed that BMI and gender were associated with preoperative overall quality of life. Females reported lower EQ5D scores than males (β=0.05,95% CI:0.09,0.01,p=0.03) and non-obese patients (BMI<30) (β=0.07,95% CI: 0.03,0.11,p<0.001). Age (>65 years old) was associated with lower scores on the KOOS symptoms domain (β=5.30, 95%CI: 1.98,8.62).
Conclusions: Patient-specific variables influenced baseline preoperative PRO scores in a TKA population. Although, race, age and BMI impacted scores, gender had the most widespread effect across PRO domains. As a result, these patient variables should be considered when developing appropriate use criteria for interpreting PRO scores for TKA patients.

Pain, Disability and Handicap

572
THIGH MUSCLE STRENGTH CHANGES CONCURRENTLY TO WORSENING AND IMPROVEMENT, BUT DOES NOT PREDICT SELF-ASSESSED WOMAC KNEE FUNCTION – DATA FROM THE OSTEOARTHRITIS INITIATIVE

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Purpose: KOA is associated with reduced thigh muscle strength and functional limitations. Quadriceps strength represents a potentially modifiable risk factor and is known to be a stronger determinant of knee function than radiographic disease severity. In a previous cross-sectional study, we have shown that a minimal clinically important difference (MCID) in WOMAC knee function is associated with a 4% difference in quadriceps strength in both men and women. In the current longitudinal study, we tested whether longitudinal changes in WOMAC function scores that exceed the MCID (worsening or improvement) are associated with concurrent change in thigh muscle strength, and/or are associated with change in muscle strength during a time period prior to the change in WOMAC function. Further, we hypothesized that these changes differ significantly from those in (control) subjects without a relevant change in WOMAC knee function.
Methods: Dominant (or right) limbs of all participants from the Osteoarthritis Initiative (OAI) data base (versions 0.2.2, 3.2.2, 6.2.2) were included who had complete demographic data, isometric knee extensor and flexor strength ("Good Strength Chair", Metitur Oy, Finland), and WOMAC knee function scores at all three timepoints: baseline (BL), year 2 (Y2) and year 4 (Y4) follow-up. Participants were divided into those with worsening ≥ the MCID in WOMAC function scores (≥6/68 units) during Y2→Y4 (n= 367), those with improvement ≥ the MCID (n= 327), or those without relevant change (<6/68, no change; n=1981). In these groups, the longitudinal changes in isometric extensor and flexor muscle strength were determined concurrent (Y2→Y4) and prior (BL→Y2) to the period of WOMAC function change (Y2→Y4), using unpaired t-tests. Sensitivity analyses were performed to explore whether the observations differed between men and women.
Results: 2675 OAI participants had complete data (1485 women, 1190 men; age 61.5±9.0 years [mean±SD]; BMI 28.3±4.6). During Y2→Y4, extensor muscle strength decreased by 4.6% in those with worsening of knee function, increased by 2.2% in those with improvement of knee function, and decreased by 2.2% in those without relevant change (Figure 1). The longitudinal loss in extensor muscle strength in those with worsening function did not significantly exceed that in those without relevant change (p=0.054), but the increase in strength in